

sponse of a genus or a family is only very little affected by evolution. This climatic response is due to physiological characters, such as temperature requirement, frost and drought resistance, and water requirement.

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SOME ADDITIONAL NOTES ON POLEMONIACEAE

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The preparation of the manuscript for the treatment of Polemoniaceae in Abrams, *Illustrated Flora of the Pacific States*, demands that certain points not suitable to develop in that publication be made clear elsewhere. These are the publications of certain new species and subspecies and the discussions of reasons for some of the decisions made where problems seem controversial. Most of the present notes concern the genus *Linanthus*. A new species of *Collomia* is also included.

LINANTHUS ANDROSACEOUS BENTH.

The treatment afforded this species calls for the aggregation of several entities traditionally regarded as distinct, as subspecies under *L. androsaceus* Benth. This move appears imperative because there seems to be no way to differentiate these subspecies clearly from one another because they show intergradation of a type that suggests wholesale introgression. What appears to have happened is that there developed under the sanction of insular isolation of late Tertiary time a large number of distinct types which, when the continent assumed its present form, were permitted to mingle, apparently without effective genetic barriers between them. The result is the present morphological confusion in the coast ranges of California and Oregon. Where colonies have persisted under conditions of isolation they have retained a certain local uniformity. One such colony occurs in the Sierra Nevada foothills and necessitates formal description as a new subspecies.

LINANTHUS ANDROSACEUS subsp. *laetus* subsp. nov. A typico *L. androsaceo* differt corollis albis, papillis testarum in descriptionibus annularibus corrugatis dispositis.

Differs from typical *L. androsaceus* in the white corolla and in having the papillae of the seed coat in a definite, corrugated pattern around the seed.

Sierra Nevada foothills from Butte County south to Amador County, California. Butte County: Cherokee, altitude 1000 feet, *Mason 12414* (type, Herbarium of the University of California, no. 754224). Eldorado County: near Latrobe, *Mason 7007*; Greene Valley, 4 miles north of Shingle Springs, *Mason 4516*; Pilot Hill, *Mason 7014*; Salmon Falls, *Crum 1027*; Smith Flat, *Robbins 995*. Amador County: Cosumnes River opposite Clark Creek, *Mason 4482*; near Forest Home, Ione to Latrobe highway, *Crum 1690*.

Linanthus Bakeri sp. nov. Herba annua erecta, 6–25 cm. alta; internodia tenues et rigida, foliis 3–7-plo longiore, infra nodis glanduloso-puberulis, pedicellis glanduloso-puberulis; rami cymosi, non profusi; folia segmentis linearibus 3–7-partita; inflorescentia paniculata irregulare, pedicellis tenuibus longis; calyx profunde in segmentis linearibus fissus, ad apicem puberulus, sinus cum membrana hyalina circa semicompleta, per capsulam accrescentem distentus; corolla anguste hypocrateriformis, 6–10 mm. longa, alba, rosacea vel violacea, quandoque zonae definite, tubus exsertus vel raro inclusus, faucium 1–4-plo longiore intus cum linea puberuli vel raro glabri, tubus et fauces vulgo extus puberulo, faucibus angustis, lobis 2–3 mm. longis; stamina in sinibus corollae affixa vel leviter infra, quam lobi $\frac{1}{2}$ longa, filamenta glabra, antherae 1–2-plo longiore; stigma exserta, lobis circa 1 mm. longis; capsula oblongo-cylindrica, semina in quoque locula plures.

Erect slender annual, 6–25 cm. high; internodes wiry, 3–7 times the leaves; glandular puberulent below the nodes and on pedicels; branching cymose, not profuse; leaves 3–7 parted into linear lobes; flowers on long slender pedicels in an irregular cymose panicle; calyx deeply cleft into linear lobes, these puberulent above toward the tips, sinuses about half filled with a narrow hyaline membrane which becomes distended by the growing capsule; corolla slender funnellform, 6–10 mm. long, white, pink, lilac or violet, sometimes with a definite zoning, tube usually exserted, rarely included, 1–4 times the throat, with a narrow hairy band within, rarely glabrous, tube and throat usually puberulent exteriorly, throat narrow, lobe 2–3 mm. long; stamens inserted in the sinuses of corolla lobes or just below, $\frac{1}{2}$ as long as corolla lobes, filaments glabrous, 1–2 times the anthers; stigma exserted from orifice of throat, lobes about 1 mm. long; capsule oblong cylindric, locules several seeded. (*Gilia Bolanderi* of Brand in Engler Pflanzenreich 4²⁵⁰:134. 1907, as to specimens cited. Non Gray.)

Fresno County and Mount Diablo, north in Coast Ranges and Sierra Nevada, California, to Klickitat County, Washington. CALIFORNIA. Pilot Hill, Eldorado County, *H. L. Mason 7015* (type, Herbarium of the University of California, no. 754226); serpentine, Stonyford, Colusa County, *Mason 12404, 12405*; serpentine Stonyford, Colusa County, *Mason 12404, 1205*; serpentine Stonyford, hills, Mount Bullion, Mariposa County, *Mason 11739*; serpentine outcrops, Scott Valley, Siskiyou County, *Horn 45*; Los Molinos, Tehama County, *Wohletz 15*; Watts Valley, Fresno County, *Hoover*; Mendocino Pass, Glenn County, *Howell 19777*; Moon-springs, Bald Mountain, Lassen National Forest, June 8, 1928, *Swift*. OREGON. Sterile ground, Tumolo, Deschutes County, *Peck 19750*; 3 miles above Cave City, May 15, 1935, *Adams*. . .

LINANTHUS BICOLOR subsp. *minimus* subsp. nov. A typico *L. bicolor* differt corollis minutis albis vel sordidis.

Corolla minute, about 1 cm. long, white to sordid.

Coastal area from Bodega Head, California, north to Puget Sound, Washington. Gages Point, Skagit County, Washington, May 8, 1927, *Roush* (type, Herbarium of the University of California, no. 709722). CALIFORNIA. Gasquet, Del Norte County, *Tracy 12361*; Hoopa Mountain, Humboldt County, *Tracy 12576*; Bodega Bay, Sonoma County, *Baker*.

LINANTHUS HARKNESSII subsp. *condensatus* subsp. nov. Caulis pumilis ramosissimus; corolla calycis longiore; stamina subsessila, faucium ad medium inserta.

Low, densely branched; corolla exceeding calyx; stamens subsessile, inserted midway on throat.

Known only from the type locality. Plaskett Meadows, Glenn County, California, *Baker 10593* (type, Herbarium of the University of California, no. 754225), *Howell 19827*.

Linanthus Killipii sp. nov. Herba annua erecta, internodiis infra vulgo congestis supra rigidus, foliis 1-8-plo longiore, ad nodem puberulis vel aliquando floccosis; cotyledones sessiles ovatae anguste perfoliatae; folia palmatim in 5-7 segmentis linearibus 3-10 mm. longis incisa, supra cum capilli albi subtus puberula vel glabra; inflorescentia cymis congestis quisque 3-7-flores; floribus sessilibus; sepalis ad margo conspicue membranaceis praeter ad apicem, membranis infra connatis post anthesin accrescens; corolla 10-15 mm. longa, anguste hypocrateriformis, tubus 4-5 mm. longus, robustus, faucium subaequans vel vix longiore a calyce inclusus vel vix exsertus, fauces angustae subcylindricae, lobis rhomboideis denticulatis vel ad apicem integeribus, basim cum macula linearis; stamina faucium, affixa, filamenta glabra faucium aequans; stylus antherae longiore, lobis circa 1 mm. longis; semina in quoque locula plures ellipsoidea, sub aqua immutata.

Erect annual, branching usually well above the base, the basal

internodes often congested, stems of the upper internodes wiry, 1-8 times the leaves, puberulent to somewhat floccose at the nodes; cotyledons sessile, ovate, narrowly perfoliate; leaves palmately cleft into 5-7 linear segments, 3-10 mm. long, puberulent to glabrate below, hairy above with weak white hairs, the lower somewhat perfoliate; inflorescence of congested cymes at the ends of the branches, each 3-7 flowered; flowers sessile; calyx lobes conspicuously membrane-margined except at the tips, the membranes united below to form the calyx tube and expanding with the growing capsule; corolla 10-15 mm. long narrowly funnel-form, the tube 4-5 mm. long, stout, from subequal to slightly longer than the throat and included or barely exerted from the calyx, throat narrow, subcylindric, that is forming a narrow angle; lobes somewhat rhombic, denticulate or entire at apex and with a linear spot near the base; stamens inserted on the throat near the junction with the tube, filaments glabrous, equaling the throat and with the anthers disposed in its orifice; style slightly exceeding the anthers, the stigma lobes about 1 mm. long; capsule locules several seeded, the valves adhering at the base; seeds ellipsoid, reddish brown, unaffected by wetting.

Upper desert slopes of the San Bernardino Mountains, California. Cactus Flat, altitude 5900 feet. San Bernardino Mountains, June 13, 1941, *Killip 36343* (type, United States National Herbarium 1,828,544); Baldwin Lake, San Bernardino Mountains, *Peirson 6748*.

LINANTHUS NUDATUS GREENE VERSUS L. NASHIANUS JEPSON

In treating this species I have accepted the name *L. nudatus* given it by Greene and rejected *L. Nashianus* of Jepson. The bracts subtending the inflorescence of this species are unlike anything found elsewhere in the genus. The lobes are joined to one another by a scarious membrane. In view of the very distinctive nature of the bracts and in view of the fact that Brand illustrated it and saw and cited a specimen labeled "Lake Co." seems conclusive proof that such a specimen existed even though we are unable to locate it at present nor has it been since collected in Lake County. Greene's description fits this species except that he makes no mention of the scarious membrane of the bract. However, the combination of hispidulose-ciliate lower leaves with villous-ciliate bracts and hirsute-ciliate calyx lobes occurs nowhere else in the genus so far as I am aware. The nearest in this respect are *L. ciliatus* and *L. montanus*, both of which were well known to Greene. However, these are hispid-ciliate throughout and neither is either hirsute- or villous-ciliate. Judging from its occurrence in the southern Sierra Nevada it seems improbable but not impossible that it occurs in Lake County. There seems no good reason, however, for rejecting the name *L. nudatus* simply

because of an apparent error in locality on the label and especially since Brand's illustration makes it amply clear what Greene had in mind when he named *L. nudatus*.

LINANTHUS DACTYLOPHYLLUM (TORR.) RYDB. VERSUS
L. DEMISSUS (GRAY) GREENE

Torrey, when calling attention to a plant collected by the Ives Expedition referred to it as being scarcely sufficient for description but he gave a very brief description and listed it as follows: "*GILIA DACTYLOPHYLLUM*, (n. sp.?)." Since the word "Dactylophyllum" is the name of a section of the genus, Gray interpreted Torrey as merely indicating the section to which it belonged, a current practice of the time. He then proceeded to name and describe the species based upon more adequate material. Gray's position is further supported by the question mark following the letters "n. sp." which to him meant that Torrey was uncertain about it being new. This led Gray in citing Torrey's name to put a comma between the generic name and the word Dactylophyllum. The comma points clearly to the reasons for Gray's action but unfortunately Torrey did not use the comma. The only clues to Torrey's action are the question mark, and the statement as to the inadequacy of the specimen. I am inclined to agree with Gray in his interpretation of the matter. I think that Torrey was meaning only to call attention to the section of the genus to which the plant belonged. I raise the following further arguments to support my contention. 1) The question mark placed where it is, indicates Torrey's uncertainty about the plant being a new species and it is my personal opinion that a question mark associated in any way with a new name should by international agreement be construed to indicate a tentative name. 2) A species named "dactylophyllum" would naturally be supposed to be the type species of the section Dactylophyllum which this is not. This constitutes a source of confusion. 3) Torrey and Gray were co-authors of the Ives report and it is reasonable to suppose that each was aware of the work and motives of the other. I therefore accept the name *Linanthus demissus* (Gray) Greene.

GILIA TULARENSIS BRAND VERSUS LINANTHUS
OBLANCEOLATUS EASTWOOD EX BRAND

In the year 1904 Culbertson collected specimens of a *Linanthus* in Hockett Meadows, Tulare County, California, which he sent to C. F. Baker. Baker, in turn sent them to Alice Eastwood for identification. She named them *Linanthus oblanceolatus* n. sp. and this name was appended to the specimens which were distributed by Baker. The name was used as well in Baker's published list, but without description. *Linanthus oblanceolatus* Eastwood then is a *nomen nudum*. I wish to emphasize the point

that the name *L. oblanceolatus* Eastwood was based upon the Culbertson specimen.

Brand, in 1907, borrowed the Polemoniaceae material from the California Academy of Sciences and found there, in addition to the Culbertson collection, two collections by Hall and Babcock. He gave to one Hall and Babcock collection (no. 5554) the name *Gilia oblanceolatus*, credited the specific name to Eastwood and cited the name *Linanthus oblanceolatus* in synonymy. The Hall and Babcock specimen was used as the type. Then Brand erected the variety *Culbertsoni*, based upon the Culbertson specimen. To the other Hall and Babcock specimen (no. 5211) which had a slightly longer corolla he gave the name *Gilia tularensis*.

In handling this problem we can disregard at the outset the name *Linanthus oblanceolatus* Eastwood as applying to the Culbertson specimen because it was never validly published. The name *Linanthus oblanceolatus* Eastwood ex Brand as applying to the first Hall and Babcock specimen was first published in synonymy with a literature citation that involved the Culbertson specimens. This I construe as invalidating the appellation *oblanceolatus* for use in the genus *Linanthus* and we must turn to the name *Gilia tularensis* for a name for these three collections which I regard to represent the same entity. The new combination and synonymy for *Linanthus tularensis* follow:

Linanthus tularensis (Brand) comb. nov. *Gilia tularensis* Brand in Engler, Pflanzenreich 4²⁵⁰: 136. 1907. *Gilia oblanceolata* (Eastwood) Brand, l.c. *Linanthus oblanceolatus* Eastwood ex Brand in synonymy, l.c. *Gilia oblanceolata* var. *Culbertsoni* Brand (spelled *Cubbertsoni*) l.c.

Collomia Tracyi sp. nov. *C. tinctoria* subvar. *luxuriosa* Brand, in Fedde, Rep. Spec. Nov. 17: 317. 1921. *C. tinctoria* f. *luxuriosa* (Brand) Wherry, Am. Midland Nat. 31: 227. 1944.

Herba annua erecta vel expansa, 5–20 cm. alta; caules bifurcati glandulosi; folia linearia vel lanceolata acuminata petiolata vel subsessilia 2–6 cm. longa; flores 2–5, terminali vel in axillis foliorum vel in furcis ramorum; lobi calycis lanceolati attenuati minute glandulosi; corolla 15–25 mm. longa, calycem 3-plo longiore; stamina valde inaequaliter inserta, infimo in tubo saepe subsessili, summis in faucibus, filamentis longis glabris; stigma inclusa, semina solitaria in loculis.

Erect or spreading annual, 5–20 cm. high; stems forked, glandular; leaves linear to lanceolate, tapered at both ends, petioled or subsessile, 2–6 cm. long, those in the inflorescence barely exceeding the flowers, flowers in clusters of 2–5, terminal on the branches or in the axils of the leaves and forks of the branches, clusters subtended by few leafy bracts; calyx lobes lanceolate attenuate, minutely glandular; corolla 15–25 mm. long, 3 times the calyx, subequal to slightly exceeding the leaves of inflores-

cence, limb about 1 cm. broad, white to pink, tube sometimes purple; stamens very unequally inserted, lowermost well down the corolla tube and often subsessile, the upper on the throat and with long glabrous filaments; stigma included, capsule obovoid, seeds solitary in the locules.

Mountains in the drainage basin of the Van Duzen, Mad, and Klamath rivers of Humboldt and Trinity counties, California, 1000 to 6800 feet. Trinity County: Three Forks of Mad River, *Tracy 10220* (type, Herbarium of the University of California, no. 754223); head of White's Creek, Devil's Canyon Mountains, *Tracy 14606*; Mary Blaine Mountain, *Tracy 14466*; Upper Mad River, June 26, 1893, *Blankinship*. Humboldt County: Grouse Mountain, *Tracy 16420, 16670*; South Fork Mountain, *Tracy 9046*; Horse Mountain, *Tracy 8161*; Van Duzen River at Dinsmore's, *Tracy 16373*; Trinity Summit, *Tracy 10468*; Van Duzen River near Carlotta, *Baker 102*; Van Duzen River Valley opposite Buck Mountain, *Tracy 2719, 2720*; northwest slope of Buck Mountain, *Tracy 2837*; Klamath River, *Chandler 1475*; Hoopa Mountain, *Davy and Blasdale 5675*.

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A NEW SPECIES OF PHACELLA FROM SONORA, MEXICO

LINCOLN CONSTANCE

The only species of *Phacelia* listed by Gentry in his admirable study (1942, p. 219) of the flora and vegetation of the Rio Mayo area of southern Sonora was given as "*Phacelia* cf. *congesta* Hook." He characterized the plant as a spring-blooming winter annual, scattered and infrequent on wooded slopes in the Short-tree Forest at elevations of 800 to 2000 feet. Since Gentry's collections are widely distributed, I have frequently met with specimens of this entity, which I have been guilty of casually annotating as "*P.* aff. *distans* Benth." Now that several sheets of this plant have recently been sent me for verification, I have found it necessary to make a more serious study of it, and have concluded that it is undescribed.

Phacelia Gentryi, sp. nov. Planta annua, basi ramosa, ramis diffusis, 3-6 dm. longis hirsutis hirsutulisque vel hirtellis, inflorescentia stipitato-glandulosa; folia oblongo-ovalave, 3-7 cm. longa, 2.5 cm. lata, pinnata vel pinnatifida, foliolis crenulatis breviter dentatisve; inflorescentia scorpioidea, cymis solitariis vel geminatis, 10-20-floribus; pedicelli maturi adscendentes, 0.5-1.5 mm. longi; calycis lobae lineari-oblongatae, 3-5 mm. longae, 0.3-0.8 mm. latae, obtusae, plerumque subaequales, dense hirsutae; corolla pallide coerulea, lati-campanulata, 5-7 mm. longa